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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/527,036

03/08/2005

Hiroshi Tanaka

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05/08/2006

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EXAMINER

MAI, ANH T

ART UNIT

PAPER NUMBER

2832

DATE MAILED: 05/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/527,036	Applicant(s) TANAKA ET AL.	
	Examiner Anh T. Mai	Art Unit 2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The rejection of the last Office action has been withdrawn due to the cancellation of claims 1-3 and newly added claims 4-23 as indicated in the pre-amendment filed March 8, 2005. In the instant office action, claims 4-23 have been considered and examined. However, the PTO-892 form cited by the examiner and copy of 1449 form considered/initialed by the examiner in the previous action are still considered valid.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over figures 9-10 of prior art admitted by applicant in view of Takahiro et al. [200150241A].

Figures 9-10 of prior art disclose a laminated coil comprising:

- A laminated body 12;
- via holes 15 in the lamination direction of the laminated body;
- conductors 14 formed on laminating surfaces of the laminated body, fixed end portions are connected by via holes;
- the coil wound in direction perpendicular to direction of lamination;

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- via holes are formed in each ceramic layer constituting the laminated body and are thru-holes, each being filled with conductor lying in a row in lamination direction.

The prior art discloses the claimed invention except for the difference between the diameter in the axial direction of the coil on opening surface of ceramic layer and the diameter in the axial direction of the coil on the opening surface in the axial direction of the coil on the opening surface of other opening surface is smaller than the difference between the diameter perpendicular to the axial direction of the coil on the opening surface of one opening of the ceramic layer and the diameter perpendicular to the axial direction of the coil on the opening surface of the other opening.

Takahiro discloses in figures 4a-b

- via holes having top opening 24a in ellipse;
 - the thru-hole having a substantially oval flat shape and the short axis direction correspond with axial direction of the coil [as in claim 5];
 - upper opening of the thru-holes having a substantially oval flat shape and lower opening having a substantially round/oval flat shape as in claims 10-11;
 - bottom opening 24b of center section in circle [0022; lines 15-20 of the translation]
- therefore, it provides a difference between the diameter in the axial direction of the coil on opening surface of ceramic layer and the diameter in the axial direction of the coil on the opening surface in the axial direction of the coil on the opening surface of other opening surface is smaller than the difference between the diameter perpendicular to the axial direction of the coil on the opening

surface of one opening of the ceramic layer and the diameter perpendicular to the axial direction of the coil on the opening surface of the other opening.

At the time of the invention made, it would have been obvious to one of ordinary skilled in the art to form the thru-hole in such shape as taught by Takahiro to the laminated coil as disclosed by figures 9-10 of prior art admitted by applicant. The motivation would have been to improve the connection dependability of the conductor due to the cross sectional area of the thru-hole becoming smaller towards the bottom of the thru-hole [0050]. Therefore, it would have been obvious to combine Takahiro with the prior art admitted by applicant.

With respect to claims 6 and 14, Takahiro coil is chip inductor coil [abstract].

With respect to claim 7, the conductor on the laminate body having a belt shape [figures 9-10 of the prior art].

With respect to claims 8-9, the conductor defined by at least three conductor layers 15, 16 [figure 10].

With respect to claim 12, each thru-hole has a first inner portion corresponding to the axial direction of the coil having greater angle of inclination than a second inner portion corresponding to the direction that is substantially perpendicular to both the axial of the coil and the lamination direction of the body as shown in drawing 7 of Takahiro.

With respect to claim 20, it is rejected for reciting method/step derived from the structure of claim 11 which is rejected above.

With respect to claim 13, figures 10 of the prior art shows the two coils are parallel in the body.

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With respect to claim 15, it is rejected for reciting method/step derived from the structure of claim 4 which is rejected above.

With respect to claims 16-18, claim 4 of Takahiro recites method of using laser beam for making thru-holes.

With respect to claim 19, it is rejected for reciting method/step derived from the structure of claim 12 which is rejected above.

With respect to claims 21-23, the claims are rejected for reciting method/step derived from the structure of claims 6, 13 and 14 which are rejected above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh T. Mai whose telephone number is 571-272-1995.

The examiner can normally be reached on 5/4/9 Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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ANH MAI
PRIMARY EXAMINER